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Forest-Fires.

A RECENT Washington dispatch announces that a bill to protect the trees on Government land from destruction by fire has been occupying the attention of the Senate. It certainly is high time that Congress should take some action in this regard, especially since the season is at hand when conflagrations in these forests on the public domain are most common. The law simply provides that any person who shall maliciously or negligently set on fire any woods, underbrush or prairie on the public lands of the United States, or who shall suffer any fire which he may have lighted on other lands to pass therefrom to the public lands, shall be guilty of a misdemeanor, and upon conviction in the District Court of the United States shall be fined a sum not more than three times the value of the property destroyed or injured, or imprisoned for a term not more than three years, or both. When this bill or a similar one was up for discussion a few months ago its constitutionality was questioned on the ground that the General Government had no authority to create any offense in a given state except on lands where it has exclusive jurisdiction. In other words, the United States has no more right to say that it is a criminal offense to burn timber in a given state than it has to say what shall be larceny or other misdemeanor on the public lands in the same state. Of course this denies to the Government the right of protecting its own property, and it is plain that common sense legislators, if they are in earnest about the matter, can devise some enactment which the courts will recognize as authoritative. The real obstruction which stands between these incendiaries and punishment will be, as it has been in the past, a lack of intelligent interest on the part of the people and of a strong public opinion behind any law to insure its enforcement. Until that opinion develops laws will be of little value, but if the time comes when the people of the country realize the value of its forests and their personal interest in them as a part of their inheritance, there will be no difficulty in making laws whose constitutionality will not be questioned by even the most strict constructionist.

In the civilized portions of Europe there is no longer any serious danger from forest-fires, because every one hastens to extinguish them as soon as they are started, and the Government can call out the whole force of the country to assist. But in less highly organized society the forests suffer from fire exactly as they do on our western frontier. From a recent number of *Akhbar*, a daily journal of Algeria, we learn that the Arabs are hardly more civilized than our own citizens. Half a column is filled with the record of a score of forest-fires all raging at once in different parts of the country. In one place 800 acres of Cork Oaks are swept away. Not far from this 5,000 acres more have been devastated. In an adjacent district 3,800 acres of forest are burning, and the woods of the entire province of Constantine are said to be in flames. There is nothing novel in these sweeping conflagrations. The Arab, like our own herder, sets fire to the brushwood either to make a clearing or to encourage forest-pasturage for his flocks and improve his hunting grounds. In 1865 a single fire lighted by a shepherd swept over 4,000 acres. In the three years from 1884 to 1887 more than 1,000 fires were started, which burned over 300,000 acres, and until these people realize the value of the forests to them the entire 7,500,000 acres of standing timber in Algeria must be threatened; and this means the possible destruction of the most important of the natural sources of wealth of the country, to say nothing of its influence upon the climate, and, through the climate, upon agriculture and the general prosperity of the country. Altogether these African Arabs seem to be doing the best they can after their feeble fashion to imitate the robust and exuberant incendiarism of our own people.

It may not be out of place here to recall the fact that fires sometimes destroy forests which have more than an economic or climatic value. Perhaps no forest in the world is more interesting from historical reminiscences than that which clothes the slopes of the Pentelicus Range and overlooks the City of Athens. These groves are associated with the familiar names of the great heroes and philosophers and lawgivers who retired to their shade for rest and refreshment, or to enjoy the prospect over the Bay of Marathon and the Attic plain, and they formed the background to some of the most stirring scenes portrayed in the annals of the world. But a few weeks ago a fire broke out on the heights and raged until the magnificent verdure of this famous forest was literally turned to ashes. A letter from Athens says that the mountain range now presents a pitiable picture of blackened devastation, with barren sides staring down on the field of Marathon. All of Attica above the capital is in mourning for the loss of this sylvan shade and shelter from the sweeping winds; and indeed the civilized world must lament the destruction of a forest intimately associated with so many capital events in the history of the Greek nation.

We have heretofore given expression to the feeling of regret at the threat of extermination which hangs over some of our beautiful wild flowers, or at least at their certain disappearance from places where they have once abounded. It is unavoidable, where important changes are made in the face of the country by drainage or cutting away forests and by burning over clearings, that many indigenous plants will be destroyed. Where land is needed for agricultural use proprietors will not be careful to save Trilliums or Lady's Slippers, but it does seem cruel for collectors to gather so many of these plants to sell that they are practically eradicated from localities where they once bloomed in profusion. Other offenders in this respect are certain botanists who gather rare plants for specimens because they are rare. But the most serious attack of all comes from the thoughtless gatherers of flowers, who carry away wild flowers by the armful only to throw them away. We speak of this now because we have just received a descriptive pamphlet from the Secretary of the American Wild Flower Club, which contains an earnest appeal for the preservation of our native plants. We

cannot help feeling that a society of this kind might do much good if properly directed, and the formation of local clubs with the same purpose should be encouraged. It may be that the appeals of this pamphlet are fraught with a trifle more of urgency than the cause demands, but no enterprise of this sort will succeed without the enthusiasm and devotion which comes from a profound conviction of its importance on the part of its promoters. We have no personal knowledge of the working of this club, but all persons who have at heart the preservation of our native flora are invited to address the Secretary of the American Wild Flower Club, Wilmington, Delaware, if they desire more specific information as to its scope and aim.

A Stone Bridge in Wales.

WE give this week on page 479 a picture of another small stone bridge which, in conjunction with those already published, shows the variety in structure and general effect of which such rustic structures are capable. This one, which bears the name of Pont-y-pair, spans a little river at Bettws-y-Coed, in Wales, and, as will be seen, is of the simplest and roughest construction, but, nevertheless, is both stable and picturesque. From the aspect of the river-bed the photograph seems to have been taken at the dry season of the year. When the channel is fuller the look of the spot must be quite different and the sylvan beauty of the view much greater.

A Classification of American Grapes.

GENUS VITIS, Tourn.; L. (in part).

SECTION I. EUVITIS, Planchon.

SERIES 1. RIPARIÆ (Munson).—1. *V. rupestris*, Scheele. Ozark Hills, Tennessee, to south-west Texas. 2. *V. riparia*, Michx. Rocky Mountains, to Atlantic, north of Ozark Hills, to 55° latitude. 3. *V. Solonis*, Hort. Berol. Headwaters of Red, Canadian and Arkansas Rivers. 4. *V. Doaniana*, Munson. Headwaters of Red, Canadian and Arkansas Rivers.

SERIES 2. OCCIDENTALES (Munson).—5. *V. Arizonica*, Engelm. Western Texas, New Mexico, Arizona, Chihuahua. *V. Arizonica*, var. *glabra*, Munson. New Mexico, Arizona, Chihuahua, south Utah. 6. *V. Girdiana*, Munson. South of San Bernardino Mountains, California. 7. *V. Californica*, Benth. California north of San Bernardino Mountains to Rogue River, Oregon.

SERIES 3. CORIACEÆ (Munson).—8. *V. Champini*, Planch. Cretaceous hills, south-west Texas. 9. *V. candicans*, Engelm. Cretaceous lands, Red River to Rio Grande and into Mexico. 10. *V. coriacea*, Shutt. Central and south Florida.

SERIES 4. LABRUSCÆ (Planch).—11. *V. Labrusca*, L. Central Tennessee, north-east Georgia, east of Alleghanies to Maine.

SERIES 5. ÆSTIVALES (Planch).—*V. vinifera*, L. Central and south-western Asia, early carried to Europe, etc. (exotic). *V. Bourquiniana*, Munson. "Southern Æstivalis" traced to southern Europe along the Mediterranean (exotic). 12. *V. Lincecumii*, Buckley. South central Texas. *V. Lincecumii*, var. *glauca*, Munson. North-eastern Texas to Missouri River. 13. *V. bicolor*, Leconte. Illinois, south Wisconsin, Michigan, Indiana, Kentucky, Ohio, New York. 14. *V. æstivalis*, Michx. Tennessee, Georgia, Alabama, North Carolina, South Carolina, Virginia, Indiana, etc. 15. *V. Simpsoni*, Munson. Central and south Florida.

SERIES 6. CORDIFOLIÆ (Munson).—16. *V. cordifolia*, Michx. Brazos River, east to Atlantic, north to 42°. 17. *V. palmata*, Michx. Along streams, southern Illinois southward. 18. *V. monticola*, Buckley. Tops of cretaceous hills, south-western Texas.

SERIES 7. CINERASCENTES (Planchon).—19. *V. Virginiana*, Munson. Mountain valleys, West Virginia. 20. *V. Berlandieri*, Planch. Cretaceous soils, south-west Texas. 21. *V. cinerea*, Engelm. Bottoms, south-west Texas, east to Atlantic, north to 40°. *V. cinerea*, var. *Floridana*, Munson. 22. *V. Caribæa*, D. C. West Indies and eastern Mexico, bottoms. 23. *V. Blancoii*, Munson. Sierra Madre Mountains, Guadalajara.

SECTION II. PUNCTICULOSIS, Munson.

SERIES 8. MUSCADINIÆ (Munson).—24. *V. rotundifolia*, Michx. Southern States. 25. *V. Munsoniana*, J. H. Simpson. South Florida.

I offer the foregoing conspectus as my classification of American species of Vitis, and with it I send some estimate of the relative horticultural value of each.

Inasmuch as this classification does not entirely agree with others it may not be out of place to give some account of my preparation for the work. In the first place, I have taken the pains to visit each species, as far as possible, in its native habitat, to search out there the best plants in vigor and quality, to plant these together in a vineyard for comparison and study, to take notes of the distribution, altitude of locality, soil, habit and all botanical characteristics in every stage of the plant from the seed up to the fully developed vine, with critical notes and drawings at every stage and season. Besides this, I have hybridized nearly every species with one or many others and have noted the effects. Again, I have corresponded extensively with persons who have cultivated any of the native species either in pure or hybrid forms, and have obtained specimens of their best discoveries and hybrids, as well as botanical specimens from all quarters of North America, including Mexico and Jamaica. I have studied the leading herbaria in the United States which have important collections of the Vitis species, including the herbaria at Harvard, at the Academy of Science in Philadelphia, at Washington, and Engelmann's collection at St. Louis. I have tried to study all the leading authors of the synonymy, although it is hopeless and inexplicable in many cases. I have attempted an exhaustive monograph upon the native Grapes of North America for the Department of Agriculture, which was written out first in 1887, and has been subsequently two or three times revised, and have been directing the work of an artist in painting accurately the growing shoots, full grown leaves, the flowers, male and fertile, etc., so as to give such complete illustration that even a novice may not err in the species when the work is finally published. My vineyard here contains growing specimens of every North American species of Vitis except *V. Californica* (which has been tried often, but as often perished by mildew) and *V. Caribæa*.

I have the species from Guadalajara, considered by Mr. Sereno Watson as *V. Caribæa*, and for a time considered by myself a variety of *V. Caribæa*, but now, after another season's growth, I am compelled to rank it a distinct species, as it develops specific characteristics not found in *V. Caribæa*. When I first obtained this in 1887 I thought it distinct, and had named it *V. Blancoii*, after Señor Luciano Blanco, of Guadalajara, who discovered it in the Sierra Madre Mountains. I shall hold to this name, as it appears now a good species, more clearly separated from *V. Caribæa* than is *V. cinerea* from *V. Berlandieri*, both recognized by our best Grape botanists.

There is not a species of the American Grapes which cannot by hybridizing and selecting be brought up to a fair degree of excellence as either table or wine fruit. One is astonished at the ameliorating effects of one cross in eliminating bad qualities and developing good ones. For example, a wild hybrid of *V. Labrusca* and *V. cordifolia* (the fruits of which are almost uneatable when pure), found growing in the woods in Roanoke County, Virginia, has produced seedlings which bear fine, large grapes, without pulp, foxiness or pungency.

V. rupestris has been used extensively, hybridized with *V. Lincecumii*, by H. Jaeger and myself, and with some other species less extensively, with the happiest results in producing very fine red wine grapes, and in some cases very good table grapes of pure, pleasant flavor.

V. riparia enters into many varieties in cultivation—in Taylor, Clinton, Montefiore, Elvira, Missouri Riesling and a host of others, combined with *V. Labrusca*—but too small of itself to be valuable. Some hybrids of *V. riparia*, from central Minnesota, with Concord, are about as large in berry and bunch as Champion, and earlier and better, and have endured unprotected a temperature of forty and fifty degrees below zero, and yet bore well. This species must enter into all varieties desired to endure the extreme winters of the north-west.

V. Solonis, with me, has been combined numerously with *V. Lincecumii*, *V. rupestris* and *V. riparia*, producing a peculiar class of grapes, without pulp and skins "thin as silk," juice always very highly colored violet and flavor very rich, sprightly, vinous, though often too acid.

V. Doaniana is generally a better grape in the wild state than Clinton and larger. It has great capacities in the hands of a skillful hybridizer, and will endure great heat and cold.

V. Arizonica is the least promising of all the species for improvement in fruit, unless varieties specially adapted to the arid region of the southern Rocky Mountain region are desired. The quality is fine, but the fruit is very small, and the vine a feeble grower, even in this region.

I have one wild hybrid of *V. Girdiana*, with *V. vinifera*, which has clusters a foot long, and small to medium very sweet fruit. But it can hardly endure the mildew or cold of this region. This and *V. Californica* could be of no use east of the Rocky Mountains. They both are more tender every way than *V. vinifera*.

V. Champini produces a medium sized black grape often of fine vinous flavor, and has great vigor, hardiness and constitution. For dry, hot regions, and limy soils, it offers a most excellent basis for a grand strain of varieties. It endures cold, too, to five to ten degrees below zero, but is affected somewhat by mildew in low, damp regions. *V. candicans* bears a horrible fruit for eating, owing to the biting pungency of the skin and the tough pulp, but the vine has great constitution for a hot country and limy soils. Though I have some fair hybrid Grapes with this, yet I think it time wasted to use it when we have so much better blood in other species. *V. coriacea* is a much more refined species, and some wild hybrids of this, with *V. Simpsoni*, from Florida, are quite good, but cuttings of *V. candicans*, *V. coriacea* and *V. Simpsoni* can be rooted only with the greatest difficulty.

Everybody knows the coarse *V. Labrusca*, which in its pure or hybrid varieties supplies almost the entire country east of the Rocky Mountains. It is a wonder that so good results have been obtained from this miserable "Skunk Grape." It is a pity that so much effort has been wasted on it while blood of quality so superior for every purpose can be commanded in other species.

V. Lincecumii, the large-fruited tribe of the Æstivalian series, has given some grand results in the careful hands of H. Jaeger and with me. It would take a fair sized catalogue to describe all the really good hybrids I have of this species, with *V. rupestris*, *V. Bourquiniana*, *V. Solonis*, *V. Labrusca*, *V. cinerea*, *V. cordifolia*, *V. vinifera*, etc. Suffice it to say that some of these, with grand vigorous vines that can endure twenty to twenty-five degrees below zero, have fruit that will stand critical tests with the best of *V. vinifera*. *V. bicolor* is capable, I am quite sure, of giving rise to a worthy tribe of pure varieties for Wisconsin, Michigan, etc., where it grows wild, as it is closely allied to *V. Lincecumii*.

V. æstivalis, another branch of the family, is already known to vineyardists in the Norton's Virginia, and with it there are quite a number of hybrids. I have several of these, some beautifully white and yellow, but not giving nearly such good results as my *V. Lincecumii* hybrids. *V. Simpsoni*, of south Florida, is the most peculiar member of this series, and is possessed of a much more tender pulp than *V. æstivalis*, and without the excessive astringency peculiar to the genuine *V. æstivalis*. But it is very sensitive to cold. It will probably become a valuable element in a race of hybrids peculiarly suited to Florida and the Gulf Coast. But its felty leaves are much attacked by leaf-rollers.

V. cordifolia, *V. palmata* and *V. monticola* have very smooth, glossy leaves never attacked by leaf-rollers, but the fruit is small and late and very seedy. However, *V. monticola* has a very sweet and peculiar flavor, and may yield something excellent in hybrids intelligently made. I have already mentioned some good hybrids with the unpromising *V. cordifolia*, or "Frost Grape."

V. Virginiana is a new species which I have obtained frequently from the high Appalachian valleys far down in Virginia. It appears to link the Cordifoliæ series to the Cinerascentes in the east, as *V. Berlandieri* does in the far south-west. I had vines of this for seven years, not knowing where to put them in classification; till this year they have fruited, and prove to be different specifically from other species. The leaves are small, of a clear, lively green, somewhat pubescent, especially along the ribs; the young wood is angled as in *V. cinerea*, but becomes round and smooth at maturity, as in *V. cordifolia*. The clusters are very compound and compact, with very small berries of a dark purple color, covered with a thin bloom when ripe. The berries are very acid till quite ripe, then sprightly vinous. They ripen just before those of *V. cordifolia*, and two to three weeks earlier than those of *V. cinerea*. The seeds are very small, with scarcely any beak, cholaza and raphe generally sunken, while in *V. cordifolia* and *V. cinerea* they are prominent. This species has never been published, so far as I am aware. *V. Berlandieri*, from the cretaceous soils of south-west Texas, is the species so much in demand just now in the chalky soils of France, especially in the Charente Inferieure, where no other species will grow without "chlorosing" (yellowing) from excess of lime; hence they use it there as a stock. But it has a very large cluster of rich, though remarkably small, fruit. It can easily be developed by hybridizing, as experiments have already proved. The leaves are of a dark green, very glossy surface, so that the leaf-roller does not prey upon them. Its greatest difference from *V. cinerea* is in the dark green, glossy leaves, those of *V. cinerea* being wrinkled, dull green, pubescent and tomentose. The clusters and fruit are much alike. *V. Caribæa* has a rounder, broader leaf, with more rusty pubescence and tomentum than has *V. cinerea*, and the clusters are still larger, with smaller berries. It is too sensitive to cold to be of any service in this country. *V. Blancoii* has smaller, more cordate leaves than either of the three last-named species, and has the lower face densely tomentous, with snowy white wool and clusters nearly simple and much smaller than *V. cinerea* or *V. Caribæa*; but the berries are larger and of a different flavor, and the young wood is less angled. It can only be carried over winter here by careful protection, being much more tender than *V. vinifera*; but mildews do not damage it much.

V. rotundifolia is the common Muscadine of the south, and is much prized by old southerners, in such varieties as Scuppernong, Thomas, etc., which have three to nine berries in a cymose cluster. The berries are very large, with a very thick, tough skin and a large, tough pulp, and have a peculiar musky flavor. They are of a dull, rusty yellow in Scuppernong, or dull black in others. The seeds are very large, resembling Coffee-grains. Some hybrids have been produced, but are not promising. The species is remarkably free from all manner of diseases and insect attacks.

V. Munsoniana is of a very slender, weeping habit, leaves smaller, with fewer, larger teeth than in *V. rotundifolia*. It begins to bloom later and continues to bloom on till frost. The clusters are of the cymose character, but bear from ten to twenty or more berries, which are small, with shining black skin, rather thin, pulp melting, filled with acid juice without the rustiness of Muscadines. The seeds are very small. This species is fully as distinct from *V. rotundifolia* as is *V. rupestris* from *V. riparia*, or *V. cinerea* from *V. Caribæa*, if not more so, and, to be consistent, it should be recognized. It appears somewhat more nearly related to the true "bunch-grape" than *V. rotundifolia*, and may be valuable to hybridize for the south.

For beautiful effect as ornamental vines in bowers running over arbors and the like, *V. palmata*, *V. monticola* and *V. Munsoniana* are exquisitely delicate, graceful and beautiful. *V. palmata* is hardy in central Illinois, *V. morticola* will endure nearly as much, *V. Munsoniana* will live almost anywhere in the southern states.

Dennison, Texas. *T. V. Munson.*

Drought-enduring Trees.

WE have had in central Iowa during the past summer the culmination of a three-year shortage in rainfall. At the commencement of spring growth we were over forty inches short of the normal supply during the three years past, and up to the first of September our lawns have had the aspect of California during the dry season. Under these circumstances I wish to note some not well known trees and shrubs which have endured our recent test winters perfectly, and have made fine, luxuriant growth during the drought where most native trees and shrubs have hardly held their own.

CUT-LEAVED BIRCH.—Our trees are from Moscow, where this tree has been long grown, and where it possibly originated from the pendent, small leaved species from the Amur Valley (*Betula Amurensis*). Our specimens have been models of health, and have made rapid growth without apparent regard to scanty rainfall. As this has also been true over the state with specimens propagated from the west European stock, I suspect it was originally obtained from east Europe.

BETULA ALBA VERRUCOSA.—Plants from east Europe of this fine variety were planted eight years ago in blue grass sod on the campus. They are now handsome, erect trees, from thirty to thirty-five feet in height. While the native Elms by their side show little recent growth and dead branches, these Birches have been growing like Russian Poplars and Willows.

ELÆAGNUS ANGUSTIFOLIA.—This beautiful silver-leaved tree of the east has also made luxuriant growth. When loaded with flowers its fragrance has been noted at a distance of over forty rods.

ALNUS RUGOSA.—A dry climate species that appears to delight in a dry air and dry soil. In expression it is a better tree than the Scotch Alder, which does not endure such summers on dry soil.

ULMUS EFFUSA.—This species is much planted to arrest snow sweeps along the Russian railways. It has large, handsome leaves, a dense habit, and is by all odds the handsomest Elm we have. It has made luxuriant growth when our natives have suffered severely from drought.

Pyrus Aria laciniata.—The White Beam of west Europe has not endured our recent summers or winters. But this eastern variety has been perfect, a rapid grower, and its beauty of foliage has attracted much attention.

Volga Oak.—I picked up some acorns under a beautiful Oak on the bluffs of the upper Volga in 1882. Trees from these, twice transplanted, are now twelve to fourteen feet in height, with dark green cut leaves of great beauty. In rapidity of growth during our dry period they have been a thing of wonder. It is said to be a variety of *Quercus robur;* but it is peculiar in expression, and the acorns are borne on thin, tough peduncles from three to four inches in length.

Phellodendron Amurensis.—The Phellodendron from China and Japan is as tender here as the common Peach. But this species as obtained from Russia appears to be hardy, handsome and defiant of drought.

Pyrus Toringo.—A species of the Apple from east Europe with remarkable, thick, rugose leaves that hold their color until very late in the fall. Severe early freezing does not appear to affect the health or color of the handsome foliage. It is a beautiful, round-topped tree, with pretty flowers and long stemmed fruit. It is said to be the original form of some of the Transylvanian Apples.

Salix laurifolia.—As introduced from east Europe, this does not appear to be identical with that of the eastern nurseries. It is a handsome, round-topped tree that few recognize as a Willow until the buds and twigs are examined. It appears to delight in heat and aridity of soil and air.

Acer Ginnala.—This makes a pretty, small tree in our climate, which in the fall puts on all the gorgeous colors of the Japan Maples, which will not live with us.

Rhus Cotinus.—As introduced from the eastern nurseries the Venetian Sumac will not endure our winters. But the variety from extreme east Europe is perfect.

Iowa Agricultural College. *J. L. Budd.*

New or Little Known Plants.

Rosa Watsoniana.

THIS curious Rose, of which a figure appears on page 477 of this issue, has been grown in the Arnold Arboretum during the last dozen years. It came to the Arboretum from the garden of Mr. Edward S. Rand, in Dedham, Massachusetts, who had obtained it, if I remember rightly, from a garden in Albany, New York. It was supposed to have been brought from Japan and to be a cultivated form of a variety of *Rosa multiflora.* Its Japanese or Chinese origin is probable, but Monsieur Crépin, whose knowledge of roses is unrivaled and to whom specimens from the Arboretum have been submitted, points out certain characters which separate it from that species and from another east Asia species of the same section (*Synstylæ*), *R. anemonæflora,* to which, however, it is closely related. The fact that the plants although perfectly hardy and flowering profusely every year produce no seed, would seem to suggest some long cultivated abnormal form from a Japanese garden, a view which is further strengthened by the fact that wild specimens of this plant have not been collected.

*Rosa Watsoniana** is a graceful plant with slender semi-prostrate stems armed with slender recurved spines. The leaves are three or sometimes five-foliolate with pubescent glandular petioles armed with minute recurved spines, and with very narrow, adnate, entire, hairy stipules. The leaflets are narrowly lanceolate or linear, contracted at the two ends and at the apex into a long slender point; they are pubescent on the lower surface along the midrib, entire, with sinuate wavy margins, and are two or two and a half inches long, the broadest less than a quarter of an inch wide. The inflorescence is many-flowered, pyramidal, four or five inches long, three or four inches broad, the primary bracts awl-shaped, hairy, deciduous with the opening of the flowers. The slender pedicels are jointed and provided with minute membranaceous, caducous bracts. The flower-buds are ovoid and slightly hairy. The sepals are narrowly lanceolate, entire, subulate-pointed, and covered thickly on the inner surface with dense pubescence. The petals, which are obovate, pointed at the apex, entire, pale rose-colored, form a corolla less than half an inch across when the flower is fully opened. The column of united styles is slender, elongated, and glabrous. The flowers open about the middle of June.

Rosa Watsoniana possesses considerable interest as a curiosity among Roses, but little beauty or value as a garden plant from the ordinary horticultural point of view; and it will probably never be very much grown, either for its remarkable foliage or its minute flowers. It has proved, however, an admirable stock for several of the Hybrid Perpetual Roses, and has already been propagated to a considerable extent for this purpose in the neighborhood of Boston.

Our illustration is from a specimen grown in the Arboretum. *C. S. S.*

*Crépin, *Bull. Bot. Soc. Belg.*, xxvii, part 2, 98; *Jour. Royal Hort. Soc., London*, xi, part 3, 2. *Revue d'Horticulture Belge et Etrangère*, xiv, 183, f. 16.

New Orchids.

Epidendrum vitellinum flore pleno.—A very interesting case of doubling has occurred in the well known *Epidendrum vitellinum.* A plant in the collection of Mr. Raphael, of Castle Hill, Englefield Green, recently produced five racemes, every flower of which was double and quite regular. The lip was replaced by an ordinary petal, and the column was broken up into six small petal-like segments, which occupied the centre of the flower, thus producing a perfectly regular double flower of twelve segments. Whether the peculiarity will prove permanent remains uncertain.—*Gardeners' Chronicle,* July 26th, p. 103; August 2d, p. 123.

Masdevallia Costaricensis, Rolfe.—A pretty little Masdevallia, introduced from Costa Rica by Messrs. F. Sander & Co., of St. Albans. It is allied to *M. Reichenbachiana* and *M. marginella,* especially to the latter, as the flowers are much of the same color, being white with yellow tails, and the nerves of the lateral sepals of the same color. The peduncle bears two or three flowers in succession.—*Gardeners' Chronicle,* August 16th, p. 183.

Cypripedium × Youngianum, Rolfe.—This handsome hybrid, mentioned on page 428, is fully described in *Gardeners' Chronicle* for August 16th, p. 183.

Masdevallia Lowii, Rolfe.—This distinct and pretty species of the Saccolabiata section, mentioned at page 133, was awarded a first-class Certificate by the Royal Horticultural Society on August 12th.—*Gardeners' Chronicle,* August 16th, p. 197.

Masdevallia × Amesiana.—A hybrid raised between *Masdevallia Veitchii* and *M. tovarensis,* and exhibited by Messrs. F. Sander & Co., of St. Albans, at a meeting of the Royal Horticultural Society on August 12th. The flowers are described as apricot-colored.—*Gardeners' Chronicle,* August 16th, p. 197.

Phalænopsis Micholitezii.—A new Phalænopsis, somewhat allied to *P. tetraspis,* which was exhibited by Messrs. F. Sander & Co. at a meeting of the Royal Horticultural Society on August 12th, when a Botanical Certificate was awarded it. The flowers are greenish white, the lip white with coarse hairs and a yellow crest, and the leaves ovate, shining green and about seven inches in length.—*Gardeners' Chronicle,* August 16th, p. 197.

Cypripedium × H. Ballantine.—A hybrid between *Cypripedium purpuratum* and *C. Fairieanum,* exhibited by Messrs. James Veitch & Sons, of Chelsea, at a meeting of the Royal Horticultural Society on August 12th, and to which a first-class Certificate was awarded. It is of dwarf habit, with much of the reticulations of *C. purpuratum* on the dorsal sepal, the petals greenish brown, with lines of crimson and the lip of similar coloring.—*Gardeners' Chronicle,* August 16th, p. 197.

Coryanthes Bungerothii, Rolfe.—A very fine species of Coryanthes, rivaling *C. Fieldingii,* whose flower Dr. Lindley affirmed to be the largest yet known among Orchids. It was sent from Venezuela in 1888 by M. Bungeroth to Messrs. Linden, L'Horticulture Internationale, Brussels, in which establishment it flowered in May of the present year. It is one of the most remarkable Orchids in existence, both in the structure of the flower and in the economy of fertilization. It is described and finely figured in *Lindenia,* vol. vi., t. 244; also described in *Gardeners' Chronicle,* August 23d, p. 210.

Dendrobium Galliceanum, Linden.—A very beautiful Orchid with the habit of *D. thyrsiflorum,* to which it is obviously allied. The sepals and petals are white, and the lip canary yellow, with fimbriate margin. It was imported with *D. thyrsiflorum* by Messrs. Linden, L'Horticulture Internationale, Brussels.—*Lindenia,* vol. vi., t. 241. *R. A. Rolfe.*

Foreign Correspondence.

London Letter.

LAST Tuesday an opportunity was afforded to horticulturists interested in the subject to compare the two garden races of Gladioli, known by the names of the Gandavensis and the Nanceianus races. This last is of only recent origin, having been raised by Monsieur Lemoine, of Nancy, and distributed last year. The Royal Horticultural Society had invited Monsieur Lemoine and Mr. Kelway, the famous grower of the Gandavensis race, to read papers on, and make an exhibition of, these two races of Gladioli. The result was a most interesting and edifying exhibition of beautiful flowers, and the production of two papers of the greatest value and importance to cultivators of the Gladiolus. The general verdict with respect to the merits of the two races of Gladioli as represented by the flowers exhibited was that whilst the Nanceianus varieties were first in interest, they fell a long way behind the Gandavensis race in point of form, size and richness of color in the flowers.

It would be difficult to find in the whole range of the great Irid order any flowers equal in richness and beauty to such Gladioli as Leonard Kelway, Mont Blanc, Baroness Burdett Coutts, Baron Schroeder or even than Gandavensis itself. Spikes as thick as a man's thumb, bearing about two feet of flowers, of which twelve or more are open at the same time, are common with Gladiolus growers now. Twenty years ago the spikes of the best kinds were not nearly so stout, and four or six flowers open at once were considered good. Mr. Kelway, Messrs. Burrell & Sons, of Cambridge, and one or two other growers are to be thanked for the great improvement

Fig. 59.—Rosa Watsoniana.—See page 476.

made not only in the size and color of the flowers, but also in the vigor of constitution which characterizes many of the newer kinds.

Mr. Kelway stated that he had grown and bred Gladioli for nearly sixty years, but it was not until 1857 that he took up their cultivation and improvement in earnest. His cultural directions were simple: a light, deep soil, the ground to be roughly dug and manured in October and allowed to remain thus till February, when the manure should be turned in and the corms planted about three inches deep, eight inches apart in the row and eighteen inches between each row. They should be lifted soon after the flowers fade and before the leaves turn yellow. They are less satisfactory if allowed to remain in the ground longer than this. They should be dried in the sun and afterward stored in a dry, cool room or shed for the winter.

By selecting the kinds and planting the bulbs in succession Mr. Kelway has these plants in flower from July till November. For decorative purposes the flowers are of great value. A large vase filled with the huge spikes of bright colored flowers is a delightful picture, and the flowers remain good for a fortnight or more. Mr. Kelway's exhibits of Gladioli at the London and provincial shows invariably open people's eyes. Yet the plants are not much grown, notwithstanding the small amount of trouble they give. Most inexperienced growers here fail with Gladioli through mistakes in harvesting and storing the bulbs.

The Nanceianus varieties possess the useful characters of hardiness and a preference for remaining in the ground undisturbed from year to year. A celebrated grower stated at the meeting that he had had some of Lemoine's hybrids (Lemoinei) undisturbed in the ground from six to eight years, and that where one bulb was at the time of planting there is a large clump now. Unquestionably we have in them the foundation of a most valuable race of garden plants. They are only beginnings as yet, but unless they differ in this respect from the Gandavensis varieties a few more years will work a great improvement. The history of his hybrid Gladioli, as told by Monsieur Lemoine himself, is most interesting. He started in 1875 with *G. purpureo-auratus*, a species brought from Natal to England in 1870. This has a spike two to three feet high, arched above, the flowers small, cupped, and colored dull yellow, with a blotch of purple on the lower segment. It proved perfectly hardy in England, and increased rapidly if left in the ground. Lemoine crossed it with the hybrid *G. Gandavensis*, which had been raised from *G. psittacinus* and *G. cardinalis*. From this cross he obtained Victor Lemoine and Marie Lemoine, the former with salmon-pink, the latter cream-yellow flowers. These obtained first-class certificates, and were distributed in 1880. The largeness of flower and number on a spike of Gandavensis had yet to be infused into the new race, so the first hybrids were crossed with it again, and every year about ten new varieties were thus obtained, until altogether sixty of them, distinct in form and color, and showing considerable variety in both these characters, had been named and distributed. The consanguinity of the whole of these was always apparent, the cupped flower, and a dark blotch surrounded by a clear space of yellow on the lower segment, being characteristic of them all. Colors of every shade, from yellow to purple, and blended in the most remarkable manner, had been the outcome of crossing a dull yellow-flowered species with the scarlet-flowered *G. Gandavensis*. So far the hybrids are known as *G. Lemoinei*. Then M. Lemoine began with *G. Saundersii*, introduced from the Cape, and flowered for the first time at Kew in 1877. It is figured in the *Botanical Magazine*, *t.* 5873. This species is remarkable for its short, curved, somewhat slender spike, bearing a few large flowers which have reflexed segments, and colored pale scarlet, white and pink. It is quite as hardy as *G. purpureo-auratus*. In 1882 Max Leichtlin crossed *G. Gandavensis* with *G. Saundersii*, which resulted in seedlings with stout spikes, large open flowers, fully four inches across, and showing considerable variety of color. These are supposed to have been secured by an American nurseryman, and it is possible that they or their progeny are the fine seedlings from Messrs. Hallock & Son, noted by me a week or two ago as being in flower at Kew.

Monsieur Lemoine crossed *G. Saundersii* with some of the best of the varieties of *G. Lemoinei* in 1883. When *G. Saundersii* was the seed-parent very few seeds were obtained, and from them came the two large-flowered, richly colored seedlings known as President Carnot and Maurice de Vilmorin. When one of the seedlings of *G. Lemoinei* was pollinated from *G. Saundersii* there were plenty of seeds. Thus the new race known as Nanceianus was originated, and in 1889 nine of the seedlings were named and distributed, whilst a large number of seedlings have not yet been sent out. The king of the lot is that called President Carnot. Its spikes are six feet high, the flowers seven inches across, the segments spreading and open, whilst the color is cherry-red, striped with carmine, the lower segment having a large scarlet blotch surrounded by a band of white.

Monsieur Lemoine claims for his new seedlings a hardier and better constitution than that of *L. Gandavensis*. They thrive in almost any kind of soil and do not require lifting in autumn; they are not influenced by unfavorable seasons to the same extent as *L. Gandavensis*. They bear and invite close inspection; the more one examines them the more beautiful they appear, and they show a wonderful range of color.

Of the seedlings shown by Monsieur Lemoine the following were the most noteworthy:

Baudin, flowers large, scarlet, with a yellow blotch and crimson throat.

M. de Vilmorin, purplish lavender, flaked with brick red and yellow.

Neue Bleue, flowers deep violet, blackish purple in the throat; they were one and a half inches across. This was the most striking novelty exhibited, being almost blue in color.

E. V. Hallock, flowers large and open, colored cream-yellow, with a blotch of rich maroon on the lower segment.

Crozy fils, bright crimson, white toward the base and lined with white.

M. Lefebvre, large flowers, colored raspberry red, speckled with crimson and blotched with white.

Alice Wilson, blush white, flaked and blotched with crimson; a very good variety.

Masque de fer, flowers small, the four outer segments colored blood crimson, the inner pair smaller and deeper in color.

Pactole, sulphur yellow, darker in the throat, with a crimson blotch.

It may be said of these seedlings originated by Monsieur Lemoine that their most striking feature is the richness and extraordinary shades of color they show, and he is to be congratulated on what he has accomplished with this race of plants in so short a time.

London. *W. Watson.*

Cultural Department.

Bulbs for the Greenhouse.

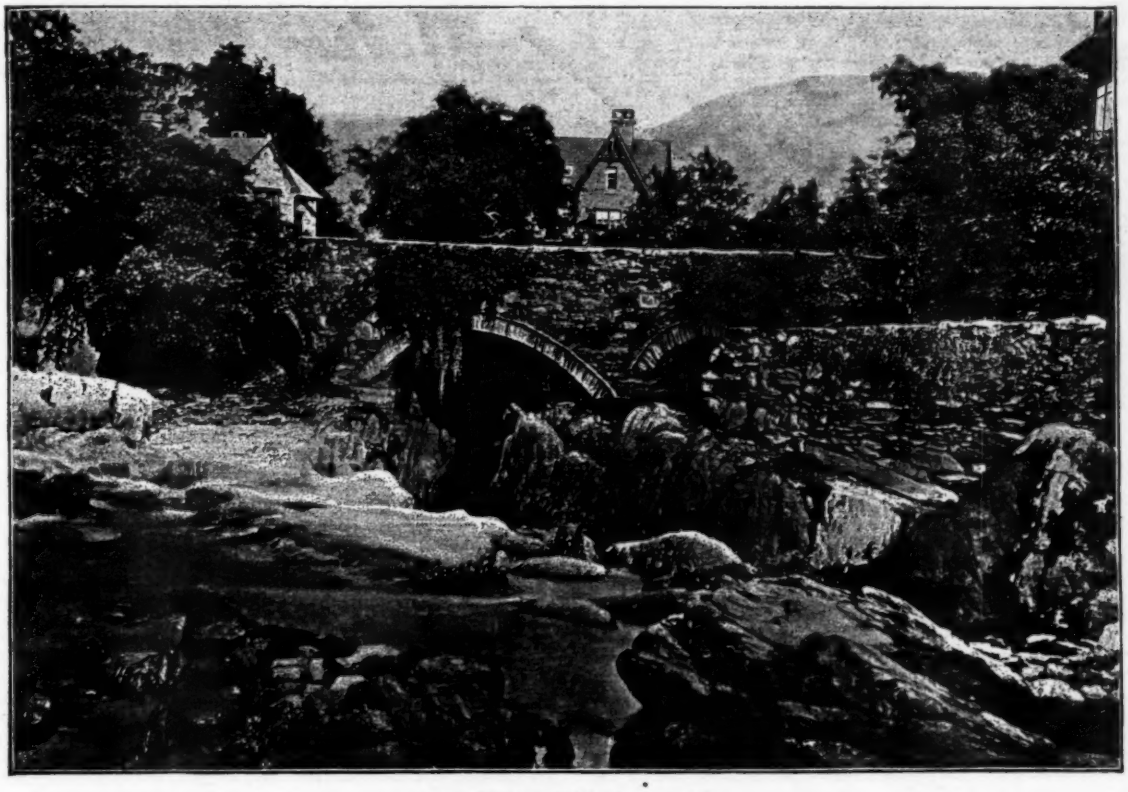
Scilla Clusii, now offered in quantity, is a really desirable winter-flowering bulb. We have cultivated it for the past three years, and have found that the bulbs may be had in flower from Christmas onward by starting them in succession. *S. Clusii* is, I believe, a native of Algeria, and, like all bulbs from that region, is not hardy, but succeeds well in an ordinary greenhouse or with window culture. A good-sized flowering bulb will need a six-inch pot and an abundance of water when about to flower. *S. Clusii* seeds freely, and, what is of more importance, the seeds germinate readily and make strong flowering bulbs the second or third year if treated liberally.

S. Peruviana resembles the above in many respects, except that it is a giant by comparison. This is not a South American plant at all, but is a native of south Europe. It is generally hardy in English gardens, but not so here in the eastern states, though it is a pity, for the immense pyramidal heads of bright blue flowers are very ornamental together with the thick, broad green leaves, which form a fine setting for the spike of flowers. *S. Peruviana*, however, has one fault that may tell against it in the opinion of many cultivators—that is, it never flowers two years in succession; it seems to need a whole year's rest after the effort of producing its large spike of flowers.

Ornithogalum Arabicum is another bulb which we have grown for several years, and which has been recently distributed in quantity. When one can get this plant in flower, it is the best of the genus. The flowers are large, pure white, with a dark olive-green centre, usually described as black. This plant has the same fault as that of the Scilla above referred to—it is impossible to [illegible] it annually. We have grown some thirty bulbs, and every second year all that were large enough produced fine spikes of flowers, and just as surely did we never get a flower the year after. This is the more remarkable as the bulbs, many of them, were the offsets formed from the older bulbs and grown on. Had they been all of the same age or obtained at the same time it would not be surprising; but it appears that, under cultivation at least, it is the nature of the plant to abstain from flowering every second

year, and therefore those who have *O. Arabicum* should not throw it away because it did not flower last year, or if it did and fails to do so this coming season. All who know it will be perfectly willing to wait until the second year, for the plant has a distinct beauty peculiarly its own. These bulbs should all be potted in rich soil with good drainage and plenty of water when the flower stems appear. In all three of the plants named the leaves appear too weak to bear their own weight; they fall down over the pots and split in the centre if not supported by a cord tied to stakes around the edge of the pots or in some other way. There are white forms of both *Scilla Clusii* and *S. Peruviana*, but in each case the typical blue is the most desirable.

Last year I spoke of the value of *Oxalis Bowiei* for pot culture, and many inquiries were received at the time as to where the plant could be obtained and when to plant it. This is the best time to pot the bulbs, and they will start to grow at once and flower until Christmas. There seems to be a general waking up to the value of this Oxalis, which is the showiest and best of a genus that contains some 200 species.



A Stone Bridge in Wales.—See page 475.

There is a good colored plate of this plant in the London *Garden* of May 31st of this year, under the name of *O. Bowieana*. In England this plant is used for summer flowering, but the bulbs are usually shipped to this country in fall with other bulbs from Holland, and make equally good winter pot-plants. The foliage resembles gigantic Shamrocks, and the flowers are one and a half inches across and of a bright rose color. *O. Bowiei* is well adapted to window culture, and multiplies rapidly by means of its bulbs.

South Lancaster, Mass. *E. O. O.*

Palm Notes.

PROMINENT among the Palms for conservatories, and useful as well for house decoration, are the Kentias, the varieties most in use being *K. Forsteriana*, *K. Belmoreana* and *K. Canterburyana*, all of which are decorative plants of the first grade. These Palms all succeed admirably under cool-house treatment, although the first two sorts mentioned are used in much larger quantities than *K. Canterburyana*, the latter being a much slower grower, and, consequently, not nearly so profitable a plant to commercial growers.

The so-called *K. australis* is not now recognized as a species by some of the leading botanists, who claim that it is merely a form of *K. Belmoreana*, though it is still catalogued by some European growers as *K. australis*. The Kentias have become very popular of late years, and are now grown by thousands in the larger nurseries throughout the Atlantic states, while the seeds are imported direct and by the bushel. The Palm-seed trade, by the way, has attained large proportions now, but the limit will probably be reached in a few years, as the number of seed-growers appears to be increasing more rapidly than the demand, large as this has been.

Geonoma gracilis is a very pretty little Palm and useful for occasional decorations, though for lasting qualities under adverse conditions it is not to be compared with *Cocos Weddeliana*, which has much tougher foliage, and is therefore much more extensively used on this side of the ocean. To be kept in good condition *G. gracilis* should be well shaded, but at the same time free ventilation is necessary, else the foliage will be too soft. The same rule, as to shade, applies to all the Geonomas, because in their natural condition they are usually found growing beneath the shade of other and larger growing Palms, and seldom or never out in the open.

Some of the "Fish-tail Palms" or Caryotas are very useful and highly ornamental as small and medium sized plants, though they rapidly attain such proportions, when under suitable treatment, that they are not suited for all collections. Of the Caryotas the most common and easiest to procure are *C. urens* and *C. sobolifera*, both of which are good and also easy to manage, as they germinate from seed readily and in a short time and make rapid growth.

Caryota urens throws up its handsome leaves on strong stems, and in a large plant they sometimes reach a length of twelve feet or more. The leaves are bipinnate, which is an unusual characteristic among Palms, and the pinnules are more or less wedge-shaped, being from six to eight inches in length and about half that measurement in width. The ends of the pinnules are erose, this giving them an odd appearance and readily suggesting the common appellation of "Fish-tail Palm," while the color of the leaf is dark green. Another peculiarity of *C. urens* is the manner in which it flowers, though this process does not begin until the plant has attained its full size. It begins to flower from the centre at the top of the

stem, after which the flower-spikes are produced in succession downward nearly to the base of the trunk, until the vitality of the plant is exhausted. The seeds are somewhat larger than a Bush Bean, dark brown in color and quite hard, this description applying to the seed proper after the outer fleshy rind has been removed.

C. sobolifera is also a fine plant, and is more dwarf in growth than the preceding. It also has bipinnate leaves, which are bright green in color, and as it throws up suckers at the base of the plant it naturally has a more bushy habit than *C. urens*. Other good representatives of this genus are *C. furfuracea* and *C. Rumphiana*, both of which are good decorative Palms. *Acanthorrhiza stauracantha*, sometimes known as *Chamærops stauracantha*, is another fine Palm which will succeed in a moderate temperature. It has palmate leaves, deeply divided, and dark green above, while the under side is covered with a silvery tomentum. A distinguishing feature of this plant is the mass of root-like spines which surround its base, and from which its generic name is derived. It is a native of Mexico, and though not yet very common, has been in cultivation for many years.

A few Sabals prove very useful in a collection of plants, as they will endure much hard usage with but little apparent injury, their deeply divided, flabelliform leaves being of very strong texture, so that they stand well when bedded out in the summer. *S. Adansonii*, which is found in some of the southern states, and *S. Blackburniana*, a native of the West Indies, are among the best and most serviceable.

Holmesburg, Pa. *W. H. Taplin.*

The Water-Garden.

NYMPHÆAS and other flowers are still blooming in the tank, but cool nights are checking rampant growth, and the frost will soon close an aquatic season which has been full of interest. The plants under culture have usually grown freely, though there are some failures which are rather puzzling. Sometimes, for instance, a Nymphæa, in apparent good health and well planted, has remained stationary for weeks, and then shot suddenly into vigor. Again, one would like to know to what extent the coloring of the flowers is affected by the manure used, as this would seem to be so affected in the case of the pink Lilies. In my small tank it is necessary to restrain the plants somewhat by contracting the root-room, the disadvantage of which is that the gross feeders use up the nutriment very effectually before the end of the season. Perhaps the addition of bones in a rather coarse shape or some other slowly decomposing fertilizer would prove a useful addition to the barnyard manure usually recommended? Of course, the plants are generally inaccessible, so that necessary stimulants cannot be applied at will.

There is often a question as to whether a small tank does not become stagnant, but with vigorous vegetation and a supply of fish there should be no trouble on this score, though a water-garden is no more automatic than any other and requires a certain amount of intelligent attention. Since the settlement of the manure early in the season the water has remained perfectly clear, and while, perhaps, not potable, it has been free from low forms of vegetation and has bred no mosquitoes; though the fish, finding nice spawning grounds in the sand, have multiplied exceedingly and added abounding life to the water. Ordinary gold fish are hardy and attractive, but a few Chinese Fantails must give a new interest to this department another season. Of the white Nymphæas, *N. alba candidissima* has proved the sturdiest grower and most persistent bloomer. The flower is larger than that of *N. odorata*, though without its fragrance. *N. pygmæa alba*, the little Chinese hardy variety, is also still in bloom, with no sign of going to rest. This Water Lily is rather inconspicuous in a pond, but very pretty in a small tank, in-doors or out.

Of the colored Nymphæas, *N. Devoniensis*, with its noble deep rose colored flowers and rich wine colored leaves, is probably the most beautiful, and, though blooming at night, it should be in every collection. Another tender kind and a more free bloomer is *N. Zanzibarensis*, which has bloomed continuously since early summer. Its large purple flowers, borne well above the water, are very attractive. The red variety is plentiful, though some stir seems to have been made over one of this color said to have been raised in Germany this year. Seedlings of the Zanzibar Water Lily are rather inclined to sport through shades of red and purple, though the dark purple is a somewhat scarce plant. Cape Cod Lilies, in a rich compost, were very highly colored during an altogether too short season.

The French *N. rosacea* seems to be different from this only in having a much more delicate pink tint. *N. chromatella* has shown numerous large flowers of a rich yellow tint, with deeper colored stamens. This bears the largest flowers of any yellow variety, some blooms nearly approaching those of *N. candidissima* in size. The leaves are very distinct, being blotched above and thickly spotted below with red. *N. sulfurea*, another of Marliac's hardy Lilies, was even more brightly spotted, but has yet not flowered. *N. Mexicana*, for which I am indebted to Mr. Horsford, also refused to move for me, but, as shown by Mr. Wm. Tricker, is a smaller flower than *N. chromatella*, though of a fine yellow. As it has a slightly mottled leaf and the habit of *N. flava*—of throwing out runners—it is probably near akin to that variety, if not identical. It is to be hoped that collectors and fanciers will search carefully for fine or distinct forms of our native Nymphæas, for no doubt, with care, such may be found.

No collection of aquatics is complete without *Nelumbium speciosum*, for the introduction of which we owe a great debt to Mr. Sturtevant. Of this one does not know whether to admire most the noble flowers or the wonderful, beautiful leaves. It is a plant of vigorous growth, and needs restraint, or its runners will quickly fill a large space. It is still throwing up its flower-buds. But for vigorous growing aquatics commend me to *Eichhornia* (*Pontederia*) *crassipes* (South American Pond-weed). The note in Garden and Forest as to this growing in acre plots was no "traveler's tale," as it will rapidly fill all available space. It will increase about 500 per cent. under ordinary culture, and whether planted in the ground or floating in water it is a vegetable wonder with beautiful flowers. *Limnocharis Humboldtii*, with its fine yellow flowers, of course, is ever attractive. Two neat little floaters are Azolla, with small oval leaves, and *Salvinia natans*, a little Selaginella-like plant of rapid increase.

Of the Sagittarias, *S. Japonica* has the finest flowers, in racemes of pure white, very double and Balsam-like. *S. Montevidensis* is the strongest grower of the race, with broad, deep green, tall foliage, and large, white, single flowers, with a crimson spot at base of each petal. Not the least attractive and satisfactory plant is *Cyperus Antiquorum*, always exciting attention by its distinctness, and of sturdy, vigorous habit. The Swamp Plantain (*Alisma Plantago*) is an attractive and showy plant, with its large, loose raceme of small white flowers. It seems to be beloved of aphides, which, however, soon disappear if the plants are sprayed or syringed with pure water forcibly enough to wash them off, when the fish quickly dispose of them.

Elizabeth, N. J. *J. N. Gerard.*

Bulbs from the Pacific Coast.

MANY of the species of Calochortus and Brodiæa from the Pacific Coast, especially those from California, are somewhat difficult to manage in our cold eastern climate. The ocean currents of that coast have such an influence on the climate that even in the northern portions of Washington along the coast the winters are quite mild as compared with the same season farther east. Some of these bulbs when wintered in an ordinary cellar begin to grow about the last of February, and by the time the ground is ready for them in spring this early growth has so exhausted them that they have little vigor left. They are not hardy, and if planted in autumn without protection will not survive our severe winters. Perhaps a very cool cellar might prevent this winter growth, but I question it. The only way I have been able to flower many of them has been to plant early in autumn and protect with three or four inches of leaves. If planted before the weather is too cold they become well rooted before winter. I believe that most of them will bear some freezing, and it seems to me that it is the alternate thawing and freezing of plants that winter kills so many. If they can be kept from thawing before spring after they have once been frozen, the cold is not so injurious. By covering them with three or four inches of leaves, though not enough to keep out all frost, they will remain frozen and dormant until it is time to remove the covering in spring.

Mexican bulbs are quite different in their manner of growth, and may be wintered in a cellar with perfect success. They will not usually start to grow before the last of May or first of June, even if planted as early as the ground can be prepared in spring. The Fritillaries from California and Oregon have done much better planted in autumn and treated in this way; and the Lilies, though much more hardy than the other bulbs, seem to do better when covered. No doubt deep planting may answer for some of them, but if the soil is of the right kind I would prefer to plant five or six inches deep, with a light covering, to eight or ten inches.

Most early-flowering plants, if not all of them, should be planted early the previous autumn. August, or July even, is not too early for some of them. The Dog's-tooth Violets, Chionodoxas, Spring Beauties, Trilliums, etc., are never as strong the first season when planted in spring or late autumn as when set in August and September. They do not flower so early nor last so long.

The Lilies from the Pacific coast are most of them early bloomers, and should be planted in early autumn. We have seldom succeeded in flowering *L. Washingtonianum* or *L. Humboldtii* when planted in spring, and they seem to require more time to become established than most plants. *L. pardalinum* has been the hardiest species. In a light loamy soil *L. parvum* and *L. rubescens* do finely, but in clay or clay loam they refuse to thrive. *L. Parryi* is a more southern species, yet it seems hardy with deep planting, and is not hard to grow. Its beautiful canary-yellow flowers appear with those of the earlier flowering sorts. It needs more moisture, however, than the other species.

Southwick, Mass. *F. H. Horsford.*

The Celery Blight.

THIS season has been particularly favorable for the development of the leaf-blight of the Celery. In a recent ride through portions of Mercer County, New Jersey, gardens were found where the Celery crop was practically a failure—the plants almost from the time they were set in the benches having suffered from the blight. This unfortunate state of the plants is due primarily to a parasitic Fungus called *Cercospora Apii*, that infests the Celery and some allied plants, the Carrot often suffering considerably from the same disease.

The presence of the blight is evidenced by yellowish green irregular patches upon the foliage. These spots shortly turn to a brown color, and finally the entire leaf, in the worst cases, droops, dries up and dies. If one of the diseased patches was examined under the microscope it would be found that small brown tufts of minute filaments protruded from nearly every one of the thousands of breathing pores in each square inch of the epidermis. Upon the tips of the threads constituting the tuft are borne long, slender spores, which fall away when ripe, and are carried about by the winds when dry and by the rains during wet weather. As the feeding threads of the Fungus are throughout the substance of the infested plant before they come to the surface to bear their spores, it is useless to try and effect a cure of foliage already badly infested.

The most natural thing to do is to pick off the worse than worthless leaves and burn them. This will do something to hold the trouble in check. In the second place, some substance can be placed upon the diseased parts to kill the spores, and at the same time upon the healthy plants or parts of plants to prevent the germination of the spores that may lodge there. From the nature of the trouble and a knowledge of what certain chemicals have done with other parasitic Fungi, it is reasonable to conclude that the compound of cupric carbonate in ammonia would prove a great assistance in ridding truck-farms of this serious pest. The formula for the Grape-rot found most effective is, three ounces of the copper carbonate in one quart of ammonia and diluted to twenty-two gallons with water.

It is a well known fact that some varieties of Celery are less susceptible than others—the "White Plume" has an excellent record, as being comparatively free from the disease.

The recent heavy rains that have fallen throughout the country will prove a great blessing to the Celery crop. They will infuse new vigor into the plants and at the same time check the growth of the blight for awhile, for it seems to be a lover of dry weather. Shading the young plants with lath or boards high above the rows has sometimes saved the crop.

Among allied plants the Carrot is the one most susceptible to this blight. A variety of the same species is found upon the Parsnip, and an abundance of wild Carrot and Parsnip in a region may be propagating places for the Celery blight.

Rutgers College. *Byron D. Halsted.*

Planting Daffodils.—The time for this work is at hand, and the question arises, How deep ought they to be planted? First-rate authorities on this subject advise shallower planting than I have found desirable, recommending in general a depth of four inches from the crown of the bulbs to the surface of the soil, but, of course, allowing a difference for the size and kind. It must be remembered, however, that this refers to bulbs which are lifted and transplanted every year, and this makes a great difference. Where bulbs are to be left for several years without being moved, I am inclined to think that deeper planting is better—quite twice as deep as that above mentioned.

No one should venture to lay down an absolute rule on such a subject, as soil makes a great difference, and experience is the best guide in every garden. But I find that in this deep and retentive soil, shallow planting produces a tendency to multiply rapidly, to the deterioration of the size of the bulb and the flower. I have certainly noticed, in beds of wild Daffodils, that when I have selected an individual of extra large flower and growth, the bulb is deeper than average, and larger if reached. I have found the same rule hold in my garden. Newly purchased bulbs, if fine and well ripened, will the first year produce equally good flowers, if planted in good soil, whether planted deep or shallow. To judge of the respective merits of deep and shallow planting, the second and third flowering season must be waited for; and I should recommend those who wish to decide between the merits of the different depths to divide a dozen similar bulbs, planting in the same border and soil, half at a depth of nine inches and half at a depth of four, and, having labeled them carefully, without disturbing them in the interval, to let us know the result when they are in flower in 1893.—*C. Wolley Dod*, in *Gardeners' Chronicle.*

Aster Novæ Angliæ.—This is one of the handsomest species of the large genus the greater portion of which are natives of North America. Novices are often puzzled to know which of the many kinds catalogued are good and distinct varieties for garden decoration. This is the less surprising since enterprising nurserymen advertise well known species under names which Professor Gray never heard of. The New England Aster is by no means peculiar to the eastern states, for we are told it is found from Canada and Saskatchewan to South Carolina and Colorado; it is one of our best tall-growing plants and never fails to give an abundance of bloom in the autumn months. In the back rows of large borders, and when used in conjunction with other tall-growing plants, such as *Helianthus orgyalis*, it is very effective. The variety Roseus has rays as large as the type, and of a deep shade of rose that is very pretty in contrast with the blue of the species. One thing more needs to be said of this class of hardy plants that form great clumps in the border, which is: that one should never hesitate to divide them when they have become large. This should be done directly after the flowering season is past, or, better still, in spring, before growth commences. The clumps may be carefully broken up and replanted in the same place, provided a liberal quantity of manure is placed beneath them. This should not be allowed to come in contact with the roots, but should be first covered with soil, upon which the plants may be set. A healthy and deep root action will thus be ensured, and any check to growth in a dry season be prevented.

South Lancaster, Mass. *O.*

Inula grandiflora.—In reply to Mr. E. O. Orpet's queries, I beg to state that seeds of this plant were received from the Himalayas through the liberality of Dr. King, at Calcutta, under the designation "Composite, species." I called it "grandiflora" in accordance with a suggestion from Sir J. D. Hooker when describing *I. Hookeri*. It may, however, turn out to be an entirely new species. In any case it is a very showy and easily cultivated perennial.

Delphinium Zalil is a native of Afghanistan and was sent to Europe by Dr. Aitchison. It flowered here two years ago, and is a showy annual or biennial, the average height here being two feet. The flowers in its native haunts are used as a dye for leather. The coriaceous, fleshy roots are often exhausted the very first year by abundant flowering, and never keep longer than two years.

Ostrowskya magnifica, perhaps, may not be quite hardy in the northern states of America. I lost several hundred last winter, when the frost was not serious. It is a gorgeous plant and well worth all the care it requires. The seed very soon loses its power of germination, and should be sown a few weeks after it ripens.

Baden-Baden. *Max Leichtlin.*

Japanese Anemones.—These plants have been so often commended for autumn display that it almost seems superfluous to refer to them again. They are especially welcome at this season of the year, when few plants are in bloom in the borders, which unavoidably have now a ragged appearance. They make excellent pot plants; specimens with over a hundred blooms open at once, in twelve-inch pots, are very striking. The length of time they remain in bloom, four to six weeks, still further recommends them. Their culture is very

easy. Good loam, yearly repotting and liquid manure when forming the flowering stems; these seem to be all the requirements necessary to insure success; yet, we seldom see them well grown.

Wellesley, Mass. *T. D. H.*

Clematis paniculata.—For a vigorous growing, profuse flowering species this cannot be excelled. The long shoots of this plant, now in bloom, are furnished with crowded clusters of feathery, fragrant, white flowers, which, though small, are borne in such wild profusion that the vine appears as a mass of white. The lower vine is well furnished with large, firm leaves. A Clematis which will make eight or ten feet of vigorous growth in its first season, is free from disease and flowers so profusely, is an ornament to any garden.

Newark, N. J. *J.*

Correspondence.

Home Experimental Gardens.

To the Editor of Garden and Forest:

Sir.—The value of experimental stations varies according to the good judgment of the Director and the wide diffusion of results in an intelligent form. I believe, however, that, as a rule, we get as reliable reports to guide general cultivation from private experimenters. I have in a long course of trials learned to rely on one or two special sources of information in each special field of work. If I wish to know the truth about a new Strawberry I compare the judgment of such men as Crawford, Williams and Miller; and there are two or three of the state experimental stations I am glad to hear from. What I wish to urge is that we shall all of us establish a series of home experiments, and make it a fixed part of our annual efforts in horticulture. These experiments, when they reach fixed results, should be reported on in such a way as to reach the general public.

For many years I have made it a point to cross-breed or specially select both among flowers and vegetables. For ten years I have carried on a series of experiments with Beans, Corn and other garden products. I have raised a Pumpkin that kept with dry storage all summer; but have not held it to be of sufficient value to disseminate. My experiments with Strawberries have never given but two promising sorts, and one of these may at some time prove to be worth general testing. In Raspberries I am testing a strain of very early red seedlings that so far promise to be superior to Turner, Marlboro and other early sorts—certainly far ahead of Hansell, Crimson Beauty and Lost Rubies. I have no Blackberry that I am certain of, but some good ones. Black Raspberries follow their parentage very closely. What I hope for is a seedling Gregg that shall be absolutely hardy. Seedling Grapes have shown some good points, but nothing to warrant their being sold. The Gooseberry is a grand fruit, growing slowly into popularity. I have succeeded in starting, or rather finding, a true cross of native and English that, after five years' test, I believe to be an advance on what we have.

Corn I have crossed quite to my heart's content, and the result is many very good sorts, from very early to very late; but I am not sure that they should be offered to the public. In Beans I have had better success. A white Wax-pod ten inches long and three inches around is big enough. The beans inside in some sorts number nine or ten and are white in color; in others pink or yellow.

Comparative culture opens another admirable field for home experiments, only that it requires far more patience than is often exercised. Very many reports as to the comparative merits of deep or shallow planting, level or hill culture, the merits of seed from the end or from the middle of the ear, of small or large tubers, etc., are vitiated by the variation of seasons.

But whatever results may prove of advantage to the public, these experiments are of immense importance to the farmer or gardener who works at them, and to his family. They lend a charm to rural life that is hardly obtainable in any other way; turning hand-work into head-work, and drudgery into poetry. The effect on children is most admirable. I should by all means allow each child a special part in a special experiment; let him work it out himself. Here he gains the power to investigate and observe, which makes all scientific research and acquisition possible. An experimental plot is better than botany books. Hired men will also be greatly improved by being engaged in comparative culture.

Clinton, N. Y. *E. P. Powell.*

Shirley Poppies.

To the Editor of Garden and Forest:

Sir.—Will you be kind enough to tell me what is a Shirley Poppy and how it differs from other Poppies?

Morristown, N. J. *B.*

[These Poppies were produced by selection by the Rev. W. Wilks, of Shirley Vicarage, England. Mr. Wilks found in a corner of his garden a stray lot of the wild scarlet field Poppy (*Papaver Rhœas*), and amongst them he noticed one blossom whose petals were distinctly edged with white, with their bases shading into the black of the stamens. A second plant he found near his home with the same white edging, and having saved the seed, the next year gave him a few blossoms which were more or less edged with white, and some others of a paler shade of red. The seed of the most distinct ones was saved from year to year, and Mr. Wilks is positive that he still finds improvement in the plants. In some of them all the dark tinge has been removed at the base of the petals, and golden stamens and anthers have taken the place of the sombre centre of the flower, and the color of the petals varies from pure scarlet to paper white, including all shades of pink and salmon-pink.

The plants have grown in vigor and robustness of habit as well as in beauty. The strain has become so well established that not more than one per cent. of "rogues" or black-centred flowers are found. A good colored plate of these Poppies was published in *Amateur Gardening* July 5th, 1890.—Ed.]

The Fay Currant.

To the Editor of Garden and Forest:

Sir.—I observe that Mr. E. P. Powell speaks disparagingly of the Fay Currant in your issue of July 23d. My experience has differed so completely from his that I am led to inquire whether his views are generally accepted. Either the conditions at his place are exceptionally unfavorable for this fruit or the conditions with me are unusually good, for it is by odds the best Currant I have ever tried.

New Haven. *S. V. C.*

[So far as our observation goes the Fay Currant is altogether a superior fruit. Many correspondents corroborate this opinion. Dr. Hoskins, for example, writes from Vermont that it is a great success with him and far ahead of the Versailles on rather light soil. The clusters are almost like Delaware Grapes in size, they sell well, and no complaint is ever made of their quality. Mr. S. D. Willard writes from Geneva that his experience with this Currant is most favorable, and he adds that he considers this the prevailing sentiment among horticulturists of western New York.—Ed.]

Recent Publications.

The Trees of North-eastern America. Illustrated from original sketches. By Charles S. Newhall. 8vo, pp. 242.

This work has been prepared for the sole purpose of enabling persons who have no botanical knowledge to identify the native trees of Canada and the northern states east of the Mississippi River, and a few—some twenty or more—of the more common species that have been introduced and naturalized in this region. The characters used are few in number, and mainly those which are most obvious. The leaves of the trees are principally relied upon in the descriptions given, and the classification is based on leaf-forms exclusively. The plan is for the student to take a leaf of his specimen, and follow it down through a few of its plainest characters—that is, whether simple or compound, alternate or opposite, entire, toothed or lobed, and if the latter, whether the lobes are entire or toothed. Having pursued his specimen to this group the student will find the leaves of all the trees of its class rather coarsely figured from what appear to be actual impressions from typical specimens. The figures are accompanied by brief descriptive text, which gives additional data for identification, drawn from the bark, flowers and fruit.

Since the book has an aim so definite it may have been advisable to omit any details that are not absolutely needed for

that single end. For example, there is no need of giving any description of the winter-buds of trees, for the key can only be used with the leaves. No mention of their flowers is made in the case of several trees, and perhaps it is enough to say of the flowers of the Sassafras, "greenish yellow, in clusters, May, June," or of the Yellow Willow, "blossoms, May." But such information is not very specific or satisfying. We may not unreasonably hope, however, that one who has taken the pains to identify a tree by means of this artificial guide will continue his investigations until he learns something of it besides its name. The truth is, however, that very few people comparatively can identify half the trees in our woods or by our roadsides, and this book will render a worthy service by helping all who follow its plain directions to call our familiar trees by their proper names.

Professor N. L. Britton has been followed as the authority on scientific nomenclature.

Report on the Substitution of Metal for Wood in Railroad Ties. By E. E. Russell Tratman. Published by authority of the Secretary of Agriculture, Washington.

This report has just been issued by the Forestry Division of the United States Department of Agriculture as "Bulletin No. 4," and while it has a special interest for railroad managers and engineers, it will be found of value to all intelligent people who give attention to the subject of forestry in general as one of the necessary economies of modern civilization. Mr. Tratman, who made this investigation on the consumption of ties, obtained his information by addressing the managers of various railroads at home and in foreign countries, and they furnished full information in reply to numerous circulars and letters. The report covers some 350 pages, besides many careful illustrations, so that it will be impossible to give anything like a summary of the information given. It is sufficient for the present purpose to say that probably there are now in the world 30,000 miles of railway laid on metal ties, which amounts to nearly sixteen per cent. of the total mileage of the world, exclusive of the United States and Canada. These figures show not only the great importance of the subject considered, but they show also that in other countries this subject has long ago passed the experimental stage in which it still remains in this country.

Of course the use of metal ties is in the interest of forestry and in the interest of the timber resources of the country, but it is also in the interest of the railways, because it reduces the expenses of maintenance and increases the safety of operation. Mr. Tratman concludes, therefore, that the introduction of metal ties will be a benefit to the forests, to the railways and to the public. The indirect value to the country and to our forests of this change to metal ties can only be realized when we consider the large amount of forest-supplies that are used in railway construction. Probably the railways use not less than one-fifth of all the timber consumed in the country. But what is of more importance, the material represented in this consumption is drawn largely from thrifty young growth which is the promise of the future, so that the timber crop is used before it has reached its most profitable age and largest production to the acre. Besides this, the most durable and valuable timbers only are desired, and consequently the forest-areas from which these kinds are culled must deteriorate in quality, the inferior ones being left to dominate and exclude more valuable kinds which are thus placed at a disadvantage by the unintelligent action of man. That this is true is proved from investigation in the forests of Kentucky, where White Oak represents forty per cent. of the natural growth, while after the timber has been culled the new growth contains not more than five per cent. of this valuable railroad timber.

The great bulk of the tie material is now cut from second growth, especially in the eastern states, and young timber that will make only one tie, or at least one tie to the cut, is called for in most specifications. This careless consumption of the best parts of the new growth must injure the future forest; for we draw in this way upon the fund which we should hold in trust and should allow to accumulate for the next generation. We do worse, indeed, because we do all we can to depreciate the value of the investment by injuring its quality.

Many considerations of this sort are brought out in a suggestive introductory note by Mr. Fernow, from which we quote the following:

"It has been shown repeatedly that our annual consumption of wood products at present exceeds double the amount of wood material that can possibly reproduce itself annually on the area covered with wood growth. It is, therefore, of national interest and within the line of work of this Division to call attention to the necessity of husbanding timber supplies, and to furnish all and any information that may lead to a more economical use of these supplies or a substitution of other material where this is practicable. While such economy is desirable in all directions, it is especially so in regard to tie-timber, since, for this purpose, the promising crop of the future is utilized prematurely—and that of the best quality and of the most valuable timbers. Furthermore, it should be known that for those who furnish these supplies for the railroad companies there is but small, if any, profit in the trade. The ties are in most cases brought to the railroads by holders of small wood-lots, and the price paid is hardly more than fair compensation for labor in making and hauling them, no value being placed upon the material itself.

"It has been suggested that railroads could be induced to substitute metal for wood only when it could be shown that an increase in the price of wooden ties is imminent. But from this report it appears that the price paid for ties in many localities is now even lower than it was formerly, notably in the north-eastern states. Yet it would be a mistake to argue from this, as a general proposition, that more timber is in the country than before, that forest-supplies are in excess of demand, and that prices are going to decrease continuously.

"The law of supply and demand as affecting the price of this commodity is vitiated by other conditions which influence the price. It is the excessive offer compared with the requirements, rather than excess of actual visible supplies available for the long run, that places the purchaser of this commodity in position to dictate the price, the offer coming from many holders of small parcels, who have no knowledge of general market conditions, and hence cannot take advantage of a comparison between actual supplies in view and demand for the present and future in adjusting the price.

"A timber crop, unlike an agricultural crop, is capable of being harvested at various stages of development. Timber fit for ties may be cut at any time, from the twenty-year-old sprout of the coppice to the old growth of the virgin forest, and the offer of the crop in this shape may be excessive at any time without necessarily indicating an over-abundance of forest-supplies in general and for the long run. The accidental simultaneous arrival at an age when the timber is fit for ties of a new growth over a large area may also in a given region make supplies appear plentiful, and, therefore, for a time reduce the price; but this present over-supply and reduction of price must necessarily be at the expense of a future short supply and increase of price. Another reason for an apparent over-supply of tie timber may be found in the opening up of new sources of supply on such roads as are capable of extension, while the old roads, with no new fields to enter, will necessarily experience a constant advance in prices with decreased offers, and will be the first to have recourse to metal on account of cheapness.

"It should also be known that, within limits, a railroad management has it in its power to keep the price low by raising freight rates, so as to make the exportation of tie timber from its territory unprofitable. The condition of the tie market, then, cannot be the only, or even the main, criterion as to when the time for substituting metal has arrived, even from a financial point of view.

"But it is not a consideration of initial cost that makes the substitution of metal ties desirable and profitable. It is superiority of track, permanence of road-bed, safety, reduced cost of maintenance, and hence ultimate saving and economy, that recommend the metal tie, as the experiences in foreign countries have proved.

"A curious lack of accurate calculation is often seen when comparisons are made on the balance-sheet between various systems of construction. If initial cost alone is considered, all financial questions are settled by the amount of cash on hand, but the question with stable corporations is whether temporary saving in initial cost is preferable to greater initial expenditure where it ensures decreased outlay for maintenance and deferred expenditure for renewal.

"From a simple calculation it will appear, for instance, that a road using ties for which it pays fifty cents, and which last eight years—like white Oak in many sections—can afford to pay $1.20 for a metal tie lasting thirty years (the presumed life of such ties) and be sure of saving at least the amount required for the renewals of the Oak ties during thirty years; or, by doubling the life of the Oak tie to sixteen years by means of preservative processes, we may pay thirty-five cents for such process and still find an advantage on the balance-sheet."

The Bulletin also contains a paper by Mr. Fernow on the consumption of forest-supplies by railroads and practicable economies in their use, to which, as well as to some details of Mr. Tratman's work, we hope to refer in a future issue.

Notes.

The eleven parks in the City of Philadelphia are estimated to contain 2,884½ acres of ground.

General Bidwell has added 700 acres to his orchard in Chico, California, so that it now covers 2,200 acres.

Mr. Carl W. Hartmann, of Sweden, is the botanist of the Lumholtz Mexican Exploring Expedition, which started from Arizona on August 30th, and hopes to return in the autumn of 1892.

English journals say that the custom of tree-planting by school children on a certain day in each year has been imported from America into Australia, in accordance with the decision of the Minister for Public Instruction. There, as here, the day will be known as Arbor Day.

A garden of Pampas Grass ten acres in extent is one of the objects of interest to tourists who visit Anaheim, California. This year about 40,000 plumes will be harvested, and the yield after the plants become fully established will average 100,000 plumes. These plumes bring about five cents apiece.

As the fragrance, if not the savor, of strawberries is injured by washing, the *Revue Horticole* recommends that, when it is desired to free them from sand, they should be gently bounced in a piece of damp muslin. The sand will remain attached to the muslin and the delicacy of the fruit will not be impaired.

Mr. E. S. Miller, writing from Floral Park, Long Island, in reference to Mr. Orpet's method of propagating Achilleas from underground stolons, says that his way of getting a stock of these plants is to store the old ones in a shed until January, then plant them in a bench and take cuttings from the young wood from that time on until May. Plants struck as late as May, if planted out, make very strong roots and give an abundance of flowers.

The Garden says of *Lilium Henryi*: "The species is a new one, and was discovered in western China by Dr. Henry, who sent a few bulbs of it to Kew last year. The habit of the plant is that of *L. lancifolium*, but taller; the flowers are in loose corymbs, specimens showing as many as eight flowers on each stem; they are reflexed as in *L. lancifolium*, three inches across, and colored rich orange-yellow, with a few tiny dots of purple. As a decorative plant this species will take rank with *L. tigrinum* and *L. superbum*."

The Garden recently noticed a new Peony as both "curious and beautiful." It is called *Pæonia Wittmanniana*, and "when the leaves first appear their bright, pale, golden green color must strike any grower of plants accustomed only to the deep toned leaves of the better known herbaceous kinds. But the picture is complete when the flower appears, of a beautiful and delicate color that may best be described as strong primrose with a dash of lemon. The texture of the petals is so firm as to remind one of a Magnolia, and the seed-pod is a bold and handsome object."

The *Gardeners' Chronicle* for August 18th described at length American methods of evaporating fruit, prompted by the fact that the subject had been discussed at a recent meeting of the Royal Horticultural Society. It seems that the industry is as yet unknown in England, but, it is believed, might profitably be developed there, although the fruit production of the country is on a scale so much smaller than our own. The best way of introducing it, one speaker at the meeting had said, would be for some land-owner to "set up one of these American evaporators, so as to give his tenants and neighbors an opportunity of testing its value."

Under the title of *Variétés Bibliographiques* Monsieur Rolland, a Parisian bookseller, is now publishing an interesting, popular flora, which is to include as many vernacular names for each plant as can be discovered, and also all the stories, superstitions, proverbs and customs relating to the plants and flowers of all parts of the world. As an extreme example of the perplexing number of common names which may be borne by a well known plant a foreign reviewer cites from this book the case of *Clematis vitalba*, for which more than 200 such names are recorded, not, of course, in French alone, but in the different languages included in the scope of the encyclopedia.

Boston journals announce the closing, after a most successful third season, of the seventeen summer play-grounds for little children established by the Massachusetts Emergency and Hygiene Association. Almost all of them were public school-yards, and although in only one was it possible to form a flower-garden, the open spaces, filled with heaps of sand, supplied by charitable individuals with toys, cut flowers and sea-shells, and superintended by a matron, have given health and happiness to a multitude of indigent children who otherwise could have found recreation only in the gutter. The average attendance for the whole summer was ninety children daily at each of the yards. At some of them the daily total occasionally rose to as many as 200.

In spite of the unfavorable year the horticultural exhibit at the New Jersey State Fair at Waverly last week, and especially the display of apples and pears, was unexpectedly fine, although not as large as usual, while the grapes were fully up to previous exhibits, and potatoes were abundant and superior in size and smoothness. The most tempting of the pears were from cold storage; the Bartletts, Boussocks and other early varieties being especially attractive. The greater part of the grape display came from Montclair, and finer clusters of Brighton, Cottage, Concord, Worden and Niagara were never seen anywhere. Samples of the new white grape, Colerain, were on exhibition. The clusters and berries were of medium size, but the quality was pronounced excellent by all.

The *Evening Transcript*, of Boston, recently gave, on the authority of the *Westborough Chronotype*, an account of a great Elm-tree which stands in the westerly part of Framingham, Massachusetts. It was transplanted from the woods by one Jonathan Rugg in the year 1774, and set in rich, moist ground to shelter a little house which had been built just seventy years earlier. At one foot from the ground it now measures twenty-eight feet six inches in circumference, while the girth of its largest limb is ten feet three inches. The circumference of its noon-tide shadow is 295 feet, an area, we are told, "that would readily accommodate two thousand people." Under one huge branch stands a two-storied farm-house and a flight of steps ascends the trunk and follows another limb to the place of its forking, where a capacious summer-house has been built. The giant tree is still healthy and vigorous.

French journals lament that unfavorable weather has almost altogether deprived the country of fruit this year. A disastrous amount of rain has so afflicted the central, northern, western and south-western districts that the markets have been almost bare of fruit except such as had come from the south. One correspondent, writing from the Department of the Seine-et-Marne, says: "We have had neither cherries nor apricots nor plums; apples have been greatly injured by hail; pears have suffered less; but our grapes will not ripen." And another, writing from Brittany, says that there the pears are all spoiled, apples are lacking in many localities, and almost all the plums had perished; that peaches are everywhere non-existent; that gooseberries and raspberries had been relatively scanty, and that, although strawberries had been quite plentiful, they "had only the form of the fruit with the taste of water." Meanwhile, complaints of excessive drought have been coming in from the south, where, we are told, even in carefully watered gardens, the trees and shrubs had faded and withered. Near the coast the moist sea-breezes "assure the abundance of the grape crop," but further north grape-growers are reported to be in despair over the persistent dryness.

We are accustomed to hearing the Ailanthus condemned as an avenue-tree, because of the irritating effect of its pollen on the bronchial tubes and its consequent offense to those who are afflicted with "hay fever." But, according to one of the editors of the *Revue Horticole*, the Plane-tree is equally undesirable, by reason of the fine hairs which cover the lower surfaces of the leaves, the buds, and even the young fruits. "These hairs, being extremely light, spread through the air, and, introducing themselves into the respiratory tubes, irritate the mucous membrane to such an extent that workmen in nurseries are obliged to cease their labor during the heat of the day. These facts are so well known, that when the grafting of Planes or even the clearing of the soil where they grow is in question, care is taken to have the work stopped when the sun rises and the dew disappears, because then the hairs detach themselves and cause an irritating cough, which sometimes even produces hemorrhage. The danger is said to be much smaller in streets than in nurseries, for the trees are then lifted well above the ground and the wind carries off most of the injurious hairs; nevertheless, the writer pronounces it a genuine danger even under these conditions, and calls to it the attention of those who superintend the planting of Parisian streets."